Microgravity Test of Universality and Scaling Predictions Near The Liquid-Gas Critical Point of ^{3}He - Progress Report. M. BARMATZ, INSEOB HAHN, Jet Propulsion Laboratory. California Institute of Technology--- Large gravity induced density gradients present in ground-based experiments prevent an unambiguous test of universality and scaling predictions near the liquid-gas critical point. A microgravity environment could provide measurements up to an additional two decades in reduced temperature closer to the transition. This ground-based research program will develop and test an experimental system capable of simultaneous measurements of several static and dynamic scaling parameters near the ^{3}He critical point. Measurements of the constant volume specific heat and isothermal compressibility along the critical isochore will be used to determine the critical exponents α and y, respectively. The sound attenuation and dispersion will be measured to test the dynamic scaling predictions. We are fabricating a cryostat for precision control of temperature ($1:10^9$), pressure ($1:10^{11}$), and density ($1:10^7$). We are now collaborating with R. Duncan to evaluate his superconducting flexible membrane design as a pressure sensor and plunger for volume adjustment. A new ^{3}He critical point high resolution thermometer is also being developed using a $GdCl_3$ salt and advanced SQUID technology. Progress in the design and fabrication of the cryostat and critical point measurement cell will be presented, [Work supported by NASA].